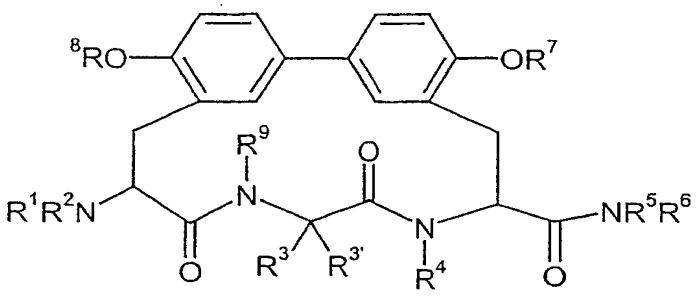
Claims

1. A compound of the formula



(I),

in which

R^1 is hydrogen, alkyl, aryl, heteroaryl, heterocyclyl, alkylcarbonyl, arylcarbonyl, heterocyclylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, alkylsulfonyl, arylsulfonyl, heterocyclylsulfonyl, heteroarylsulfonyl or a carbonyl-linked amino acid residue,

where R^1 apart from hydrogen may be substituted by 0, 1, 2 or 3 substituents R^{1-1}, where the substituents R^{1-1} are selected independently of one another from the group consisting of halogen, alkyl, trifluoromethyl, trifluoromethoxy, nitro, cyano, amino, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl, heterocyclyl, hydroxy, alkoxy and carboxyl,

R^2 is hydrogen or alkyl,

where R^2 apart from hydrogen may be substituted by 0, 1, 2 or 3 substituents R^{2-1}, where the substituents R^{2-1} are selected

independently of one another from the group consisting of halogen, amino, alkylamino and dialkylamino,

or

R^1 and R^2 together with the nitrogen atom to which they are bonded form a heterocycle which may be substituted by 0, 1 or 2 substituents R^{1-2}, where the substituents R^{1-2} are selected independently of one another from the group consisting of halogen, trifluoromethyl, amino, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl, heterocyclyl, hydroxy, alkoxy, carboxyl, alkoxycarbonyl and aminocarbonyl,

R^3 is hydrogen, alkyl or the side group of an amino acid, in which alkyl may be substituted by 0, 1, 2 or 3 substituents R^{3-1}, where the substituents R^{3-1} are selected independently of one another from the group consisting of trifluoromethyl, nitro, amino, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl, heterocyclyl, hydroxy, alkoxy, carboxyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, guanidino and amidino,

in which cycloalkyl, aryl, heteroaryl and heterocyclyl may be substituted by 0, 1 or 2 substituents R^{3-2}, where the substituents R^{3-2} are selected independently of one another from the group consisting of halogen, alkyl, trifluoromethyl and amino,

and in which free amino groups in the side group of the amino acid may be substituted by alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, heterocyclyl, alkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, heterocyclylcarbonyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, arylsulfonyl, heterocyclylsulfonyl or heteroarylsulfonyl,

$R^{3'}$ is hydrogen, C_1-C_6-alkyl or C_3-C_8-cycloalkyl,

R^4 is hydrogen, C_1-C_6-alkyl or C_3-C_8-cycloalkyl,

R^5 is hydrogen, alkyl, alkenyl, cycloalkyl, aryl, heteroaryl, heterocyclyl or an amine-linked amino acid residue,

where R^5 may be substituted by 0, 1, 2 or 3 substituents R^{5-1}, where the substituents R^{5-1} are selected independently of one another from the group consisting of halogen, alkyl, trifluoromethyl, trifluoromethoxy, nitro, cyano, amino, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl, heterocyclyl, hydroxy, alkoxy, carboxyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, aminosulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, arylaminosulfonyl, heterocyclylaminosulfonyl, heteroarylaminosulfonyl, aminocarbonylamino, hydroxycarbonylamino and alkoxycarbonylamino,

in which alkyl, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl and heterocyclyl may be substituted by 0, 1, 2 or 3 substituents R^{5-2}, where the substituents R^{5-2} are selected independently of one another from the group consisting of hydroxy, amino, carboxyl and aminocarbonyl,

R^6 is hydrogen, alkyl or cycloalkyl,

or

R^5 and R^6 together with the nitrogen atom to which they are bonded form a heterocycle which may be substituted by 0, 1, 2 or 3 substituents R^{5-6}, where the substituents R^{5-6} are selected independently of one another from the group consisting of halogen, alkyl, trifluoromethyl, nitro, amino, alkylamino, dialkylamino, cycloalkyl, aryl, halogenated aryl,

heteroaryl, heterocyclyl, hydroxy, alkoxy, carboxyl, alkylcarbonyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl and dialkylaminocarbonyl,

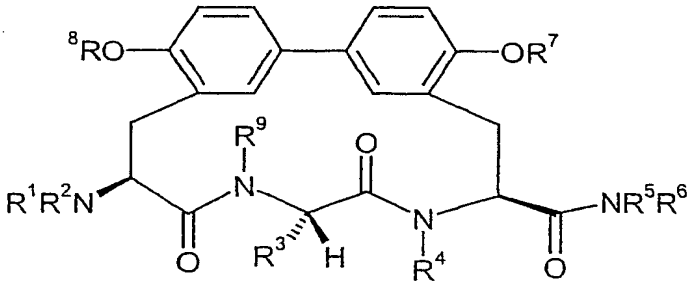
R^7 is hydrogen, C_1-C_6-alkyl, alkylcarbonyl or C_3-C_8-cycloalkyl,

R^8 is hydrogen or C_1-C_6-alkyl, and

R^9 is hydrogen or C_1-C_6-alkyl,

and one of the salts thereof, or one of the solvates thereof and one of the solvates of the salts thereof.

2. A compound as claimed in claim 1, characterized in that it corresponds to the formula



(I')

in which R^1 to R^9 have the same meaning as in formula (I).

3. A compound as claimed in claim 1 or 2, characterized in that

R^1 is hydrogen, alkyl or alkylcarbonyl,

R^2 is hydrogen,

R^3 is alkyl or the side group of an amino acid, in which alkyl may be substituted by 0, 1, 2 or 3 substituents R^{3-1}, where the substituents R^{3-1} are selected independently of one another from the group consisting of trifluoromethyl, nitro, amino, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl, heterocyclyl, hydroxy, alkoxy, carboxyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, guanidino and amidino,

in which cycloalkyl, aryl, heteroaryl and heterocyclyl may be substituted by 0, 1 or 2 substituents R^{3-2}, where the substituents R^{3-2} are selected independently of one another from the group consisting of halogen, alkyl, trifluoromethyl and amino,

and in which free amino groups in the side group of the amino acid may be substituted by alkyl,

$R^{3'}$ is hydrogen, C_1-C_6-alkyl or C_3-C_8-cycloalkyl,

R^4 is hydrogen, C_1-C_6-alkyl or C_3-C_8-cycloalkyl,

R^5 is hydrogen, alkyl, alkenyl, cycloalkyl, aryl, heteroaryl, heterocyclyl or an amine-linked amino acid residue,

where alkyl, alkenyl, cycloalkyl, aryl, heteroaryl and heterocyclyl may be substituted by 0, 1, 2 or 3 substituents R^{5-1}, where the substituents R^{5-1} are selected independently of one another from the group consisting of halogen, alkyl, trifluoromethyl, trifluoromethoxy, nitro, cyano, amino, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl, heterocyclyl, hydroxy, alkoxy, carboxyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl and dialkylaminocarbonyl,

in which alkyl, alkylamino, dialkylamino, cycloalkyl, aryl, heteroaryl and heterocyclyl may be substituted by 0, 1, 2 or 3 substituents R^{5-2},

where the substituents R^{5-2} are selected independently of one another from the group consisting of hydroxy, amino, carboxyl and aminocarbonyl,

R^6 is hydrogen, alkyl or cycloalkyl,

or

R^5 and R^6 together with the nitrogen atom to which they are bonded form a heterocycle which may be substituted by 0, 1, 2 or 3 substituents R^{5-6}, where the substituents R^{5-6} are selected independently of one another from the group consisting of halogen, alkyl, amino, alkylamino, dialkylamino, hydroxy, alkoxy, carboxyl, alkoxycarbonyl, aminocarbonyl, alkylaminocarbonyl and dialkylaminocarbonyl,

R^7 is hydrogen, C_1-C_6-alkyl, alkylcarbonyl or C_3-C_8-cycloalkyl,

R^8 is hydrogen,

and

R^9 is hydrogen.

4. A compound as claimed in any of claims 1 to 3, characterized in that

R^1 is hydrogen,

R^2 is hydrogen,

R^3 is aminocarbonylmethyl, 3-aminoprop-1-yl, 2-hydroxy-3-aminoprop-1-yl, 1-hydroxy-3-aminoprop-1-yl, 3-guanidinoprop-1-yl, 2-aminocarbonylethyl, 2-hydroxycarbonylethyl, 4-aminobut-1-yl,

hydroxymethyl, 2-hydroxyethyl, 2-aminoethyl, 4-amino-3-hydroxybut-1-yl or (1-piperidin-3-yl)methyl,

$R^{3'}$ is hydrogen,

R^4 is hydrogen, methyl, ethyl, isopropyl or cyclopropyl,

R^5 is hydrogen, C_1-C_6-alkyl or C_3-C_8-cycloalkyl,

where alkyl and cycloalkyl may be substituted by 0, 1, 2 or 3 substituents R^{5-1}, where the substituents R^{5-1} are selected independently of one another from the group consisting of halogen, C_1-C_6-alkyl, trifluoromethyl, trifluoromethoxy, amino, C_1-C_6-alkylamino, C_1-C_6-dialkylamino, C_3-C_8-cycloalkyl, C_6-C_{10}-aryl, 5- to 10-membered heteroaryl, 5- to 7-membered heterocyclyl, hydroxy, alkoxy, carboxyl, C_1-C_6-alkoxycarbonyl, aminocarbonyl, C_1-C_6-alkylaminocarbonyl and C_1-C_6-dialkylaminocarbonyl,

R^6 is hydrogen or methyl,

or

R^5 and R^6 together with the nitrogen atom to which they are bonded form a piperidinyl or morpholinyl,

R^7 is hydrogen,

R^8 is hydrogen,

and

R^9 is hydrogen.

5. A compound as claimed in any of claims 1 to 4, characterized in that

R^1 is hydrogen,

R^2 is hydrogen,

R^3 is 3-aminoprop-1-yl or 2-hydroxy-3-aminoprop-1-yl,

$R^{3'}$ is hydrogen,

R^4 is hydrogen or methyl,

R^5 is hydrogen, C_1-C_6-alkyl or cyclopropyl,

where alkyl may be substituted by 0, 1, 2 or 3 substituents R^{5-1}, where the substituents R^{5-1} are selected independently of one another from the group consisting of trifluoromethyl, amino, hydroxy, carboxyl, aminocarbonyl and phenyl,

R^6 is hydrogen or methyl,

R^7 is hydrogen,

R^8 is hydrogen

and

R^9 is hydrogen.

6. A compound as claimed in any of claims 1 to 3, characterized in that R^1 is hydrogen.

7. A compound as claimed in any of claims 1, 2 and 6, characterized in that R^2 is hydrogen.

8. A compound as claimed in any of claims 1 to 4, 6 and 7, characterized in that R^3 is 3-aminoprop-1-yl or 2-hydroxy-3-aminoprop-1-yl.

9. A compound as claimed in any of claims 1 to 3 or 6 to 8, characterized in that $R^{3'}$ is hydrogen.

10. A compound as claimed in any of claims 1 to 4 or 6 to 9, characterized in that R^4 is hydrogen or methyl.

11. A compound as claimed in any of claims 1 to 4 or 6 to 10, characterized in that

R^5 is hydrogen, C_1-C_6-alkyl or cyclopropyl,

where alkyl may be substituted by 0, 1, 2 or 3 substituents R^{5-1}, where the substituents R^{5-1} are selected independently of one another from the group consisting of trifluoromethyl, amino, hydroxy, carboxyl, aminocarbonyl and phenyl.

12. A compound as claimed in any of claims 1 to 3 or 6 to 11, characterized in that R^6 is hydrogen or methyl.

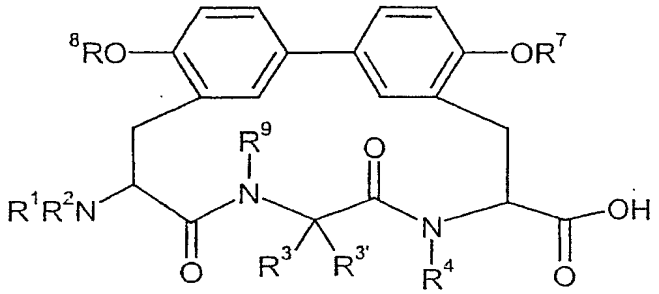
13. A compound as claimed in any of claims 1 to 4 or 6 to 12, characterized in that R^5 and R^6 together with the nitrogen atom to which they are bonded form a piperidinyl or morpholinyl.

14. A compound as claimed in any of claims 1 to 3 or 6 to 13, characterized in that R^7 is hydrogen.

15. A compound as claimed in any of claims 1, 2, 6 to 14, characterized in that R^8 is hydrogen.

16. A compound as claimed in any of claims 1, 2, 6 to 15, characterized in that R^9 is hydrogen.

17. A process for preparing a compound of the formula (I) as claimed in claim 1, characterized in that a compound of the formula



(II),

in which R^1 to R^4 and R^7 to R^9 have the meaning indicated in claim 1,

is reacted with a compound of the formula

$$H\text{-}NR^5R^6 \qquad \text{(III)},$$

in which R^5 and R^6 have the meaning indicated in claim 1.

18. A compound as claimed in any of claims 1 to 16 for the treatment and/or prophylaxis of diseases.

19. A medicament comprising at least one compound as claimed in any of claims 1 to 16 in combination with at least one pharmaceutically suitable, pharmaceutically acceptable carrier or other excipients.

20. The use of a compound as claimed in any of claims 1 to 16 for producing a medicament for the treatment and/or prophylaxis of bacterial diseases.

21. A medicament as claimed in claim 19 for the treatment and/or prophylaxis of bacterial infections.

22. A method for controlling bacterial infections in humans and animals by administration of an antibacterially effective amount of at least one compound as claimed in any of claims 1 to 16.